

Claims

1. Axial piston machine (1) with a housing (2), in which
a drive disc (7) and a cylinder block (12) axially
5 arranged in its vicinity are rotatably mounted
relative to one another about longitudinal centre
axes (11, 13), which extend obliquely to one another
by an angle (W1) in an oblique axis plane (E),
a plurality of piston bores (15) being arranged in the
10 cylinder block (12) and in which pistons (16) are
displaceably guided axially to and fro, of which the
piston ends facing the drive disc (7) are supported in
a universally pivotal manner on the drive disc (7),
on the front face of the cylinder block (12) facing
15 away from the drive disc (7) a cam disc (18) being
arranged which is supported on the housing (2) by a
first positioning device (19) with positively
cooperating positioning elements (19a, 19b) and on its
side facing the cylinder block (12) comprising a guide
20 element (21) with a guide centre axis (22) extending
coaxially to the longitudinal centre axis (13) of the
cylinder block (12),
characterised in that
the positioning element (19b) arranged on the cam
25 disc (18) is offset transversely to the guide centre
axis (22) in the oblique axis plane (E) and the cam
disc (18) is able to be installed in a further
position rotated by approximately 180° about the guide
centre axis (22), in which the positioning
30 elements (19a, 19b) also cooperate.

2. Axial piston machine according to claim 1,
characterised in that
the first positioning device (19) comprises a pivoting
guide (31) curved about the intersection (14) between
5 the longitudinal centre axes (11, 13) of the drive
disc (7) and the cylinder drum (12) and in which the
cam disc (18) can be adjusted in the oblique axis
plane (E) by an adjustment device (32) and can be
fixed in the respective adjustment position.
- 10 3. Axial piston machine according to claim 1 or 2,
characterised in that
the positioning element (19b) is offset relative to
the guide centre axis (22) by an offset angle (W2)
15 which is smaller than approximately 10° .
4. Axial piston machine according to claim 3,
characterised in that
the offset angle (W2) is approximately 3° .
- 20 5. Axial piston machine according to any of the preceding
claims,
characterised in that
the guide element (21) comprises a guide surface (23a)
25 rotationally-symmetrically curved about the guide
centre axis (22) which preferably is a raised portion
of the cam disc (18) or planar and in that the front
surface of the cylinder block (12) facing the cam
disc (18) is adapted to the form of the guide
30 surface (23a).

6. Axial piston machine according to any of the preceding claims,
characterised in that
the positioning element (19b) arranged on the cam disc
5 (18) is a recess in which an adjusting pin is held as a second positioning element (19a).
7. Axial piston machine according to any of the preceding claims 1 to 6,
10 **characterised in that**
the cylinder block (12) is supported by the guide element (21) transversely to its longitudinal centre axis (13) on the cam disc (18).
- 15 8. Axial piston machine according to any of the preceding claims,
characterised in that
the cylinder block (12) is positioned positively against relative displacement in the oblique axis
20 plane (E) by a second positioning device (41).
9. Axial piston machine according to claim 8,
characterised in that
the second positioning device (41) is formed by a
25 positioning pin (42) which is seated with a pin portion (42c) in a positioning recess (42a) in the cam disc (18) and is seated in a positioning recess (42b) of the cylinder block (12) with a positioning
pin (42d) offset in the oblique axis plane (E) by the
30 offset (a).

10. Axial piston machine according to claim 9,
characterised in that
the pin portion (42d) seated in the cylinder
block (12) is rotatably mounted in the cylinder block
5 (12) by a rotary bearing (40).
11. Axial piston machine according to claim 9 or 10,
characterised in that
the pin portion (42c) seated in the cam disc (18)
10 forms a positioning element for the first positioning
device (19).
12. Axial piston machine according to claim 11,
characterised in that
15 the positioning element is formed by a positioning
recess (19b) open on the front face.
13. Axial piston machine according to any of claims 9
to 12,
20 **characterised in that**
between the cam disc (18) and the cylinder block (12)
a disc (44) with a hole (44a) is arranged for the
positioning pin (42) which preferably is large enough
so that in the offset position of the cam disc (18) a
25 transitional region (42g) of the positioning pin (42)
preferably extending obliquely has a free space in the
hole (44a).
14. Axial piston machine according to any of claims 9
30 to 13,
characterised in that

the positioning pin (42) comprises an elongate through hole which preferably opens out into the positioning recess (19b).

- 5 15. Cam disc (18) for an
axial piston machine (1) with a housing (2) in which a
drive disc (7) and a cylinder block (12) axially
arranged in its vicinity with pistons (16) axially
displaceable therein, are rotatably mounted relative
10 to one another about longitudinal centre axes
(11, 13), which extend obliquely to one another in an
oblique axis plane (E) by an angle (W1),
the cam disc (18) comprising
- a guide element (21) arranged on a first face of
15 the cam disc (18) with a guide centre axis (22) which
extends transversely to the cam disc (18) and in its
centre region,
 - a pivoting guide surface (18a) on the second face
of the cam disc (18) opposing the first face, this
20 pivoting guide surface (18a) being curved in the form
of a circular arc shape in a convex manner about an
intersection (14) located on the guide centre
axis (22) and parallel to an oblique axis plane (E)
containing the guide centre axis (22),
 - 25 - and a positioning element (19b) on the cam
disc (18) for positioning the cam disc (18) on the
housing (2),

30 **characterised in that**

the positioning element (19b) is offset transversely to the guide centre axis (22) in the oblique axis plane (E).

- 5 16. Cam disc according to claim 15,
characterised in that
the positioning element (19b) is offset relative to
the guide centre axis (22) by an offset angle (W2)
which is smaller than approximately 10°.
- 10 17. Cam disc according to claim 16,
characterised in that
the offset angle (W2) is approximately 3 DEG.
- 15 18. Cam disc according to any of claims 15 to 17,
characterised in that
the guide element (21) comprises a guide surface (23a)
rotationally-symmetrically curved about the guide
centre axis (22) and which preferably is a raised
20 portion of the cam disc (18).
19. Cam disc according to any of claims 15 to 18,
characterised in that
the positioning element (19b) arranged on the cam disc
25 (18) is a recess in which an adjustment pin (19a) can
be held.